WHAT IS CLAIMED IS:

1. A process for forming and aligning microstructures on a patterned substrate comprising the steps of:

placing a mixture comprising a curable material between the patterned substrate and a patterned surface of a mold, the patterned surface of the mold having a plurality of microstructures thereon;

stretching the mold to align a portion of the patterned surface of the mold with a portion of the patterned substrate;

curing the curable material to a rigid state adhered to the substrate; and

removing the mold to leave hardened structures of the mixture aligned with the pattern of the substrate, the hardened structures substantially replicating the microstructures of the patterned surface of the mold.

2. A process for forming and aligning ceramic microstructures on a patterned substrate comprising the steps of:

providing a slurry comprising a mixture of a ceramic powder and a curable fugitive binder;

placing the slurry between a patterned glass substrate and a patterned surface of a mold, the patterned surface of the mold having a plurality of microstructures thereon;

stretching the mold to align a portion of the patterned surface of the mold with a portion of the patterned substrate;

curing the curable binder to harden the slurry and to adhere the slurry to the substrate;

removing the mold to leave green state microstructures of the slurry adhered to the substrate, the green state microstructures substantially replicating the microstructures of the patterned surface of the mold.

3. The process of claim 2, further comprising the steps of debinding the green state microstructures to substantially burn out the fugitive binder, and thereafter firing the green state microstructures at an elevated temperature higher than that used for debinding to sinter the ceramic powder to form ceramic microstructures.

4. The process of claim 3, wherein the positions of the ceramic microstructures on the substrate after the firing step substantially match the positions of the green state microstructures on the substrate before firing.

5. The process of claim 2, wherein the step of curing the curable binder comprises exposing the slurry to ultraviolet or visible light radiation through the substrate, through the mold, or through both the substrate and the mold.

6. The process of claim 2, wherein the step of stretching the mold comprises mechanically pulling the mold in a single direction lateral to the substrate.

7. The process of claim 2, wherein the step of stretching the mold comprises heating the mold in a substantially uniform fashion to thereby expand the mold.

8. The process of claim 2, wherein the mold comprises a thermoplastic material having a smooth surface and an opposing microstructured surface.

9. The process of claim 2, wherein the mold comprises a base film layer and a patterned layer made from a curable polymer, the patterned layer having a smooth surface adhered to the base film layer and a microstructured surface opposing the base film layer.

10. The process of claim 3, wherein the slurry further comprises a diluent selected to promote release properties with the mold during the removal step and to facilitate burn out of the binder during the debinding step.

11. The process of claim 2, wherein the slurry further comprises a silane compound selected to promote adhesion with the substrate during the curing step.

12. The process of claim 2, wherein the patterned glass substrate comprises a series of substantially parallel and independently addressable electrodes spaced a distance apart.

13. The process of claim 12, wherein the microstructure of the patterned surface of the mold comprises a series of substantially parallel ridges protruding from the surface of the mold, the ridges having dimensions and spacings such that the ridges are capable of being aligned with the electrodes of the substrate during the step of stretching the mold.

14. The process of claim 13, wherein the step of stretching the mold comprises mechanically expanding the mold in a direction parallel with the ridges of the mold.

15. The process of claim 13, wherein the step of stretching the mold comprises mechanically expanding the mold in a direction perpendicular with the ridges of the mold.

16. The process of claim 13, wherein the step of removing the mold comprises peeling the mold from the green state microstructures in a direction parallel with the ridges of the mold.

17. An electronic display assembly comprising a glass substrate, a plurality of independently addressable electrodes patterned on the glass substrate, and a plurality of ceramic barriers molded and aligned on the glass substrate according to the process of claim 2.

18. A high definition television screen assembly including a plasma display panel comprising:

a back glass substrate having a plurality of independently addressable electrodes forming a pattern;

a plurality of ceramic microstructured barriers molded and aligned with the electrode pattern on the back substrate according to the process of claim 2;

phosphor powder deposited between the ceramic barriers;

a front glass substrate having a plurality of electrodes, the front substrate mounted with its electrodes facing the electrodes on the back substrate; and

an inert gas disposed between the front and back substrates.

19. An apparatus for molding and aligning ceramic microstructures on a patterned substrate comprising:

a means for bringing a stretchable mold having a microstructure thereon into close proximity with a patterned substrate;

a means for determining alignment of the microstructure of the mold with a predetermined portion of the patterned substrate;

a means for injecting a slurry comprising a ceramic powder dispersed in a curable binder between the microstructure of the mold and the substrate;

a means for stretching the mold to align the microstructure of the mold with the predetermined portion of the patterned substrate; and

a radiation source for curing the binder of the slurry between the substrate and the mold.